ATC Globe

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In This Issue...

From the ATC Commander

by Colonel Andrew Ellis, Commander, Aberdeen Test Center

As I jokingly tell people, I'm the envy of many of my contemporaries. Being Commander of ATC is a childhood dream come true - where else can you drive, shoot, blow things up and get paid to do it! These past three years have been challenging, but most of all fun. Fun not only because of great facilities and test sites, but fun because of the great people in ATC and our great customers. But like all good things, the ride for me is near the end.

I appreciate the dedication and support that you have given the Aberdeen Test Center. Together we have accomplished much, but there is always more to do. I hope that I have left ATC a better place. I have no doubt that COL Mary Brown will make ATC even better. She is no stranger to the testing business and will bring with her a wealth of experience and new ideas to ATC.

I'm sure that she will enjoy the job and the wonderful relationships that have been established with our customers and within ATC.

Again, thank you for your support over the past three years.

Technical Director's Corner

by Jim Fasig, Technical Director, Aberdeen Test Center

Information to our customers is our primary mission. Lately I am concerned that a number of our customers have not been getting the information they need in the time frame required. As a command we are taking extraordinary measures to rectify this problem.

As you can well understand system performance information is a continuous stream that occurs throughout the test process and it is our intent to keep you fully informed on a continuous basis. However, as our customer you might not know the myriad ways this can be accomplished.

Instant reporting occurs using the Army Test Incident Report System (ATIRS). This reporting process provides system information on a daily basis. It will identify incidents on your system within five day of occurrence. The report is electronic and can include digital images of the hardware. To obtain this level of continuous data contact your test director to set up this system for your test item.

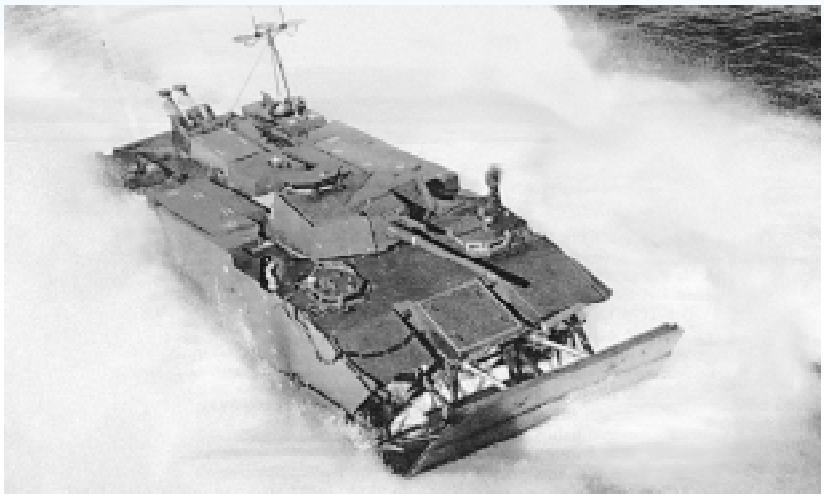
You can also select, for non-classified tests a web based reporting system called VISION which can provide both incident reporting plus system performance data to you on a daily basis. Furthermore, using this system, both interim reports and final reporting can be accomplished electronically.

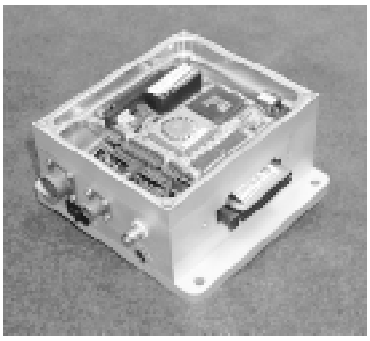
Another avenue that you can consider is specified interim reports and/or partial reports when specific phases of testing are complete. This approach will keep you informed even though the test of your system is not complete. These reports can be provided on CD-ROM if you desire. The distribution of these reports or any noted above are determined by you and are only releasable with your permission.

Final reports are always important as they assimilate all the information throughout the test and will include summaries of the ATIR Data, individual sub-test results, performance information, etc. Frequently this report is key to milestone decisions. Knowing when the report is needed both to the customer and the evaluator is crucial to the test director. Our commitment is to deliver that report as required. It is fully recognized that there are times testing will continue to the ninth hour. In those cases summary reports, letter reports and partial reports may be sufficient. We need to know when those adjustments will work for you. Late reports do not help a decision required today. Therefore our goal is to provide all the information possible in a continuous manner with the final report on time.

Automotive Information on the Move

Information: it may not be the most dynamic aspect of the vehicle evaluation, but it is arguably one of the most important links in the development chain. Indeed, the only reason we carry out vehicle testing is to acquire data that can be used to improve the product. So if information is critical, we need to establish some ground rules as to what we can, and should, expect from our data tools – the words 'current', 'complete', and 'accurate' all spring to mind, as do the requirements for it to be available anywhere, anytime, and in any format. And how does one ensure they receive their information in such a way? Aberdeen Test Center (ATC), uses an array of onboard instrumentation, communication links and computer facilities to collect, process and distribute information for diverse activities, and has a few ideas.





ADMAS units are installed for information gathering on Amphibious Assault vehicles and on Volvo truck testing at ATC.

For starters, let's look at the web-centric approach that ATC employs; it merges and exploits instrumentation and data technologies to build in information versatility at the point of collection. The entire process is integrated to provide information rapidly to designated customers worldwide.

ATC has developed an onboard instrumentation suite to support the technical data requirements in military and commercial environments. The need to collect more information, over short and long periods of time, dictated high flexibility with scalability, and the capability to easily size and install data acquisition resources based upon changing requirements. Designated as the Advanced Distributed Modular data Acquisition System (ADMAS), the suite addresses the major data collection challenges associated

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On the Cover

The Joint Tactical Electrical Vehicle (JTEV), which underwent more than a year of testing at ATC, goes through its paces at ATC's Munson test course.

Commander COL Andrew G. Ellis
Editor Vonnie Hughey
Technical Director James W. Fasig
Design International Imaging Center

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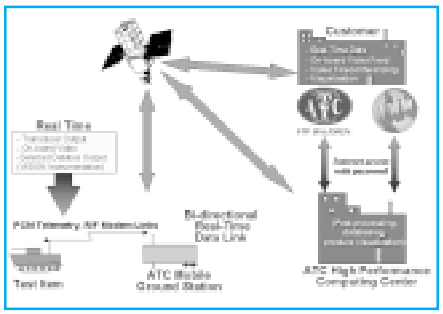
with various data resources including modern high-speed, multibus platforms.

The ADMAS suite is composed of multiple devices that are small, rugged, robust and can be dispersed throughout the host platform. At the heart of the suite is a Resident Kernel (RK). The RK has integrated capabilities to communicate with the host system via a serial line-interface protocol connection, and serves as a gateway to the attached data acquisition devices. The RK also has an integrated Global Positioning System (GPS) capability and records vehicle positions with the GPS time-source serving as the master clock for all attached data acquisition devices. All ADMAS devices share the characteristics of a powerful computational engine with a large storage capacity. A number of processors such as the Intel 486, Pentium and Motorola 68040 have been used, and solid state, removable PCMCIA disk drives have been adopted. To date, ATC has developed data acquisition devices to record system buss data from MIL STD 1553B, CAN 2B, SAE J1939, SAE 1708, FDDI, CDDI, RS 422/485 and various platform-unique utility busses.

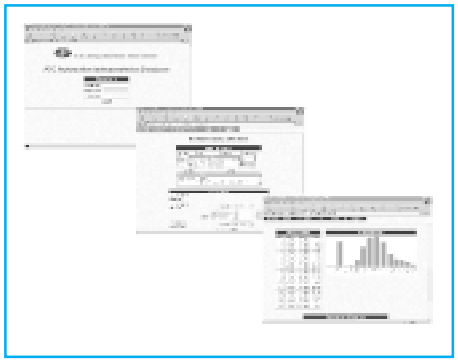


Typical information transfer combination – terrestrial and satellite

Information collected by the onboard ADMAS may be processed and stored onboard or passed through a radio frequency (RF) connection to a data collection facility. The communication techniques to support the data transfer are tailored to meet the automotive platform activities and the customer's needs for each test, while for line-of-sight area activities, high-speed telemetry and spread-spectrum wireless techniques are typically used. For far-ranging activities, cellular telephone and satellite connections are used. A combination of these techniques is used to support the high-intensity specialized test operations of the US Marine Corps' Advanced Amphibious Assault Vehicle (AAAV).

A high-speed (>1 meg bit/sec) telemetry link passes all information from the AAAV platform to a nearby receiving station in real time, allowing close monitoring of hundreds of data elements on the AAAV. Slow-speed links (<100K bits/second) are also used to monitor selected parameters. These links typically provide platform performance monitoring, as well as quality assurance of data that are being stored in the on-board ADMAS memory. The slow links are bi-directional, and command and control the instrumentation suite. This setup allows the ADMAS to be remotely and dynamically programmed/reprogrammed to monitor and transmit other data parameters.

All data received from the line-of-sight area activities may be retransmitted via a satellite link to a distant site(s). The link may be



Internet access to a high-performance database.

configured in a number of ways to provide: point-to-point data transfer; real time data rebroadcast for remote multipoint reception; bi-directional remote command and control with data; and compressed video.

Point-to-point data transfer is quite useful for mass data-transfer from storage in the activity area to remote computers or customer facilities. Real-time rebroadcast provides real-time data viewing at multiple remote sites. The bi-directional command and controls permits data requests from remote sites, as well as the remote configuration/reconfiguration of software and hardware.

The availability of cellular telephone connection around metropolitan centers and major public highways provides an effective communications link to monitor and download information from widely dispersed fleet vehicles. ATC is using this communication technique to monitor and retrieve information in support of a U.S. Department of Transportation Intelligent Vehicle Initiative (IVI). In support of the IVI, and in close cooperation with Volvo Trucks North America and US Express

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ATC Employees Shine at Awards Ceremony

Pictured left to right, Brian Gill, accelerated corrosion test director; Bill Mullis, lead accelerated corrosion test director; Marty Bindel, lead test director; LTC Raymond, PM MTVR; Kerry North, lead performance test director; and Bob Schoffstall, lead RAM-D test director.

On February 14, 2001, thirty-nine ATC employees and contractors were recognized for their support on the Marine Corps Medium Tactical Vehicles Replacement (MTVR) program.

Lieutenant Colonel Walt Raymond, Jr., program manager of the MTVR program, presented certificates of appreciation to the 39 ATC personnel to include: test directors, performance engineers, mechanics, data collectors, drivers, and instrumentation technicians.

"I would like to take this opportunity on behalf of MTVR to personally thank you for the outstanding work you did." Raymond said. "I am here to present individual certificates to you to show my appreciation. Thanks to your efforts, we have a truck that has passed a first article test. Good job! Be proud, because of your effort, the Marine Corps will get this truck to go to combat with a greater operationally capability."

> "...Good job! Be proud, because of your effort, the Marine Corps will get this truck to go to combat with a greater operationally capability."
>
> LTC Walt Raymond, Jr., MTVR Program Manager

Raymond also praised Marty Bindel, lead test director, for keeping the program on schedule and under budget.

The certificates of appreciation cited the recipients for superior service while assigned to the Medium Tactical Vehicle Replacement First Article Test during the period of February 2000 to September 2000. Their outstanding efforts were key to MTVR's successful test and development. As the MTVR is fielded, they can take pride in knowing that the United States Marine Corps will benefit from their dedicated service. As stated on the certificates, "Your exemplary performance is hereby recognized as meeting the high standards set by this office, The Program Executive Office for Ground Combat and Support Systems and the United States Army."

> "Today is a special day and a great occasion,"
>
> Colonel Andrew Ellis, ATC Commander

"Today is a special day and a great occasion," said Colonel Andrew Ellis, Commander of ATC. "Because a program manager from Detroit has come to recognize all of you for doing outstanding jobs. It is not often that you get the PM to let you know he appreciates what you have done for his program."

Article provided by ***Vonnie Hughey,*** *Command Staff.*

ATC Supports the Battlefield Ordnance Awareness Initial Real Time Demonstration

U-21 Aircraft with BOA Sensor Pod

Between November 4 and December 6, 2000, ATC hosted and supported the Battlefield Ordnance Awareness (BOA) Initial Real Time (IRT) Demonstration. The aircraft mounted BOA infrared sensor system, sponsored by the U.S. Army Space and Missile Defense Command (SMDC), is being developed to detect, locate, classify, and report various ordnance events. The principal objective of the effort was to test system hardware and software algorithms, and collect flash signatures from tanks, artillery, mortar fire, and static detonations. The secondary objective was to demonstrate the BOA system to potential users of the system. U.S. Army SMDC selected Aberdeen Test Center for this effort mainly because of its ability to collect weather, geodetic, ballistics, and photographic data. Nearly of equal importance was the ATC weapons array, climate, terrain, and close relative location of the firing ranges to Phillips Army Airfield. U.S. Army SMDC also valued the opportunity to test and collect data using the dedicated ground support of ATC rather than at a non-test oriented military firing range at which they could only collect data on an opportunistic basis.

Ball Aerospace was the prime contractor responsible for development, integration, and data collection of the BOA system. Radiance Technology provided technical support to U.S. Army SMDC. Science Application International Corporation (SAIC) provided flight support for the Program Manager for Airborne Reconnaissance Low (ARL) U-21 aircraft.

In order to address SMDC test objectives and data requirements efficiently, Radiance Technology, Ball Aerospace, and ATC collaborated to develop comprehensive and complex test matrices. The test matrices required sequential firing of five weapons systems and static detonations, separated by certain time and distance intervals and terrain requirements. Responding to the requirements, ATC was able to dedicate many resources and brilliantly displayed its wide range of capabilities in this major test effort.

The test was conducted in two phases. During the first phase, data were collected and processed to test the newly integrated BOA sensor hardware and software. In the second phase, real-time demonstrations were shown in Trench Warfare complex conference room. At the demonstrations were representatives of the Ballistic Missile Defense Organization (BMDO), Army Space Command (ARSPACE), US Army, Navy, Air Force, Marines, United States Forces Korea (USFK), United States Forces Europe (USAEUR), and others.

The success of the test was heavily dependent on the ability of all personnel involved to perform their tasks under pressure. The personnel, the names of which are too many to list here, performed excellently in supporting the demands of the test.

ATC provided the firing support for M1A1 and T-72B tanks,

M109A3 and M198 155-mm howitzers, a 120-mm mortar, and C-4 static detonations. Jerry Gwaltney, of the ATC Range Safety Team, was challenged with the task of selecting adjacent firing ranges that accommodated the terrain and weapons separation requirements of the test, while maintaining safety zones required for each weapon and ammunition combination. The expertly developed layout had tank firing locations at Trench Warfare–1 (TW-1) 800 meters downrange, the artillery firings at TW-2 800 meters downrange, and the 120-mm mortar firings and C-4 detonations at 1500 meters, Barricade-1. This arrangement placed the weapons along a single line, which was a key safety requirement for the test.

120-mm Mortar

Numerous groups at ATC performed and supported the weapon firings. The Vehicles and Equipment Team provided heavy equipment and operators to set bomb-proofs and the M198 howitzer. The Weapons, Environmental Chambers, and Weapons Processing Team were instrumental in working out storage solutions for the various types and amounts of ammunition for the test and serviced the guns daily. Curt Janney and Paul Durkin of the Fire Control Team combined forces with members of the OPFOR Tech and Ballistics Field Team to fire the M1A1 and T-72B tanks. For howitzer firings, the Large Caliber Team supplied ATC veteran test director Dick Barnett. Dynamic Science Inc. (DSI) formed the howitzer and mortar crews. Donna Martin of the Small Arms Team and Dana Boyd of the Special Ordnance Team lead the mortar firings. The High Explosives Team furnished Bruce Donald, Roy Cole, and Bob Caudill for the static detonations.

Along with firing the weapons, ATC was responsible for providing ground truth data. Working in conjunction with the Range Safety Team, the Geodetics Team had the job of locating and recording the multiple firing locations and firing lines. They also had the task of providing flight path coordinates for the aircraft and producing detailed maps for use during the test and future data analysis. The ATC Meteorology Team diligently collected surface and upper air weather data as well as irradiance data to support test objectives. The International Imaging Team provided extensive photographic support, which included still photography and International Range Instrumentation Group (IRIG) time-tagged video of all firing events. The Ballistics Instrumentation Team proficiently collected muzzle velocity radar data tagged with IRIG.

Along with firing the weapons, ATC was responsible for providing ground truth data.

Phillips Army Airfield supported ground operations for the aircraft. The hangar housed the aircraft and was also the prime location for hardware and software fixes and data analysis. Daily meetings were conducted at Phillips to discuss test and planning issues.

The U.S. Army SMDC plans to return to ATC to test a refined BOA system. SMDC will be returning to take advantage of the unique combination of comprehensive data collection, facilities, knowledgeable and experienced manpower, terrain, climate, and active test management services of ATC.

For additional information, contact ***Eric Hurtt*** *at DSN 298-7277, commercial 410-278-7277, or e-mail: ehurtt@atc.army.mil.*

What's In The Smoke?

Chemists and engineers at ATC are working together to ensure our soldiers and environment are safe from the emissions produced by the various weapon's systems in the U.S. Army. This is a critical issue for the Army and has presented many technological challenges for performing the necessary chemical analyses in unique military situations. ATC has faced these challenges while conducting recent test programs, which were specifically designed to determine the environmental emissions and assess the related health impacts produced by guns and ammunition, including pistols, rifles, grenade launchers, tank guns, mortars, and explosives. These findings will be used to modify current Army training and test practices.

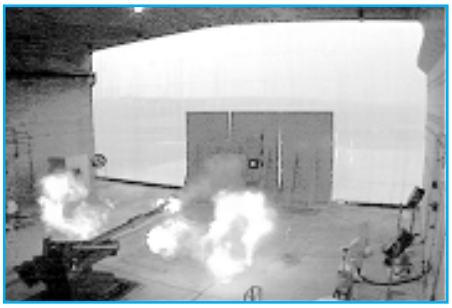
These findings will be used to modify current Army training and test practices.

The test data gathered will be used for responses to regulatory, as well as public, concerns and questions directed at many training and testing issues, such as Health Hazard Assessments, Environmental Impact Statements, Environmental Assessments, Resource Conservation Recovery Act Permits, Air Permits, Emergency Planning and Community Right to Know Act input, and Health Risk Assessments.

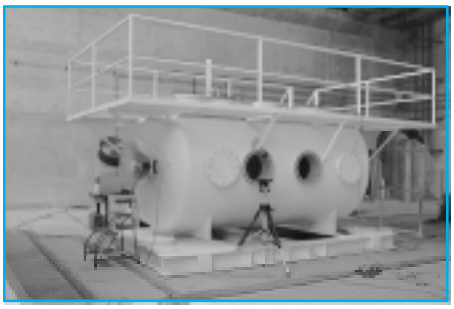
ATC uses ambient, source, and/or industrial hygiene sampling and analysis methods to identify the emissions of weapon systems. Depending on the type and size of each item tested, ATC utilizes one of three unique test chambers to install sampling systems for chemical analysis of emissions. ATC's Emission Characterization Chamber was set up for sampling the emissions of small weapons firings. One of ATC's firing barricades has been instrumented for sampling the emissions of large caliber weapons firings. The Large Octagon Test Chamber (LOTC) was designed by ATC for testing bulk explosives, such as C4, dynamite, grenades, and other high explosives. In the LOTC, an instrumentation platform is lowered into the resultant gases to sample after the bulk explosives are detonated. The effects of blast pressures was one of the main engineering problems that was overcome in developing and modifying the emission sampling systems. In all of the chambers the mixing of the emission gases is accomplished using a series of circulation fans.

ATC utilizes state-of-the-art instrumentation to conduct analyses of the various sample gases collected during testing, such as a Fourier Transform Infrared Spectrometer, a Gas Chromatography Mass Spectrometer, and an Ion Chromatograph (IC). These and other extensive testing capabilities at ATC are available to US and foreign government, academia, and private industry.

ATC's Large Octagon Test Chamber (LOTC)



Interior of ATC's modified barricade during firing of a large caliber weapon



ATC's Emission Characterization Chamber (ECC)

Future plans are for ATC to extend these successful test techniques to support the other armed services.

For more information, contact ***Robert Durgin*** *at DSN 298-3714, commercial 410-278-3714, or e-mail: rdurgin@atc.army.mil.*

ATC Honors Employees and Contractors on the BCT-IAV, Bid Sample Team

One-hundred ninety one civilian and contractor employees of the Aberdeen Test Center were honored at a recent awards ceremony by the Brigade Combat Team – Interim Armored Vehicle, (BCT-IAV) for their exceptional performance and support during the BCT-IAV Bid Sample Event. Bid samples for a new and lighter Infantry Carrier Vehicle for the Interim Brigade Combat Team underwent a series of events at ATC that enabled the Army to evaluate the performance and endurance of each candidate vehicle.

In October 1999, the Army Chief of Staff General Eric Shinseki unveiled his vision to make the Army a rapidly deployable, lethal, agile, survivable and sustainable force. He launched a major Army transformation that initially required the organization of Brigade Combat Teams, capable of deploying to any hot spot in the world within 96 hours. To meet this challenge, and ultimately reach the "Objective Force," the Army has developed an "Interim Force" that consists of two Initial BCT's.

The operational requirements of the teams require not only changes in organization, but also new, lighter, more mobile weapon systems. The Army's plan to equip the BCTs include the IAV, that will be comprised of two vehicle classes - the Mobile Gun System and the Infantry Carrier Vehicle.

Colonel Ellis, ATC Commander, presents Pete McCall, ATC's Interim Armored Vehicle team leader, with a letter of appreciation from Major General Codwell, former TACOM Commander.

Four offerors made IAV proposals to the Army and brought "bid samples" of the Infantry Carrier Vehicle to the Aberdeen Test Center, for a 30-day series of events. This series of events enabled the Army's Source Selection Evaluation Board to evaluate the performance and endurance of candidate vehicles.

"The event plan normally would take four months to complete with one contractor and two vehicles, but this program had four offerors," said Col. Andrew G. Ellis, ATC commander. "Add to that, another month for compiling the results and reporting the information to the customer. The ATC Team accomplished in 25 days all field-testing and by day 35, one hundred percent of the results were provided to the evaluators. All of this was accomplished without a safety or security incident and under budget. All of you are commended for the success of this event."

> "...All of you are commended for the success of this event."
> Colonel Andrew Ellis, ATC Commander

The Automotive Core recognized thirty people for support provided to the overall test coordination, data collection, performance driver support, automotive performance measurements, instrumentation, maintenance support, data processing and reporting.

Thirteen individuals from the Command Staff supported the Bid Sample event with security control due to the competitive nature of the event and significant number of foreign nationals, with fast response in purchases, and provided each vendor with the required facilities, parts storage, and workspace to allow them to support their vehicle.

Six people from the Firepower Core were recognized for providing support with the performance measures of the remote weapon stations on each of the Bid Samples.

Seven individuals from the Survivability/Lethality Core

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assisted with the much-needed support during the swim testing. They also provided the machining and welding support needed to adapt instrumentation and various specialty work.

The Technology Core recognized eighteen employees who were instrumental in the establishment of the Digital Library, the data-handling scheme used to provide the data to the evaluators, as well as photographic support throughout the event.

The Warfighter Core provided the support of thirteen people in the areas of Human Factor Engineering, toxic fumes, and noise measurements as well as assistance with the C-130 transportability event.

Several ATC contractors supported this program. COBRO, Inc. provided thirty-four data collectors; Dynamic Science Inc. provided twenty-two employees for instrumentation, technical support, and photographic assistance; Dyncorp provided four employees who assisted with photographic support; and Tero Tek International, Inc. provided thirty-five drivers for the bid samples.

Additional support was provided by the U.S. Army Test and Evaluation Command – North; High Performance Technologies, Inc.; U.S. Army Research Laboratory; United States Military Academy; and U.S. Army Operational Test Command for assistance in data quality review and releasing of information to the evaluators.

Mr. Pete McCall, the ATC's Interim Armored Vehicle team leader closed the awards ceremony by saying to his team members, "I received a message that probably means more to me than all the thank you notes put together. It came from Dr. Richard McClelland who had the tough and not so glorious job of being the Source Selection Evaluation Board Chairman. He saw what value our efforts made in the source selection process and how the information we gathered supported the evaluation. Through the numerous briefings to the Source Selection Advisory Committee and Source Selection Authority, he would turn to the information gathered during the Bid Sample to support the technical briefings. His message was simple and I am sure it was meant for all of you, 'I hope you feel a little proud of your work last year. You should."'

> "I hope you feel a little proud of your work last year. You should."
> Dr. Richard McClelland, Source Selection Evaluation Board Chairman

Mr. McCall invited those involved in the event to sign the detailed test plan which will be displayed in the ATC Headquarters' lobby.

Article provided by ***Phyllis J. DeFranks****, ATC Public Affairs Office.*

ATC Tests Marine Corps' Amphibious Prototype

The U.S. Marine Corps is developing a "revolutionary" amphibious assault vehicle that can be launched many miles from shore, hydroplane to shore like a jet boat, and convert to a highly mobile armored personnel carrier on land that packs a punch. ATC has been testing a prototype.

The Advanced Armored Assault Vehicle (AAAV) is designed to carry 17 combat-equipped infantry troops and a crew of three. It is also designed to run on a turbo-charged diesel engine powering two high-power water jets in the rear that can propel the craft at speeds over 20 nautical miles per hour. Designers expect the

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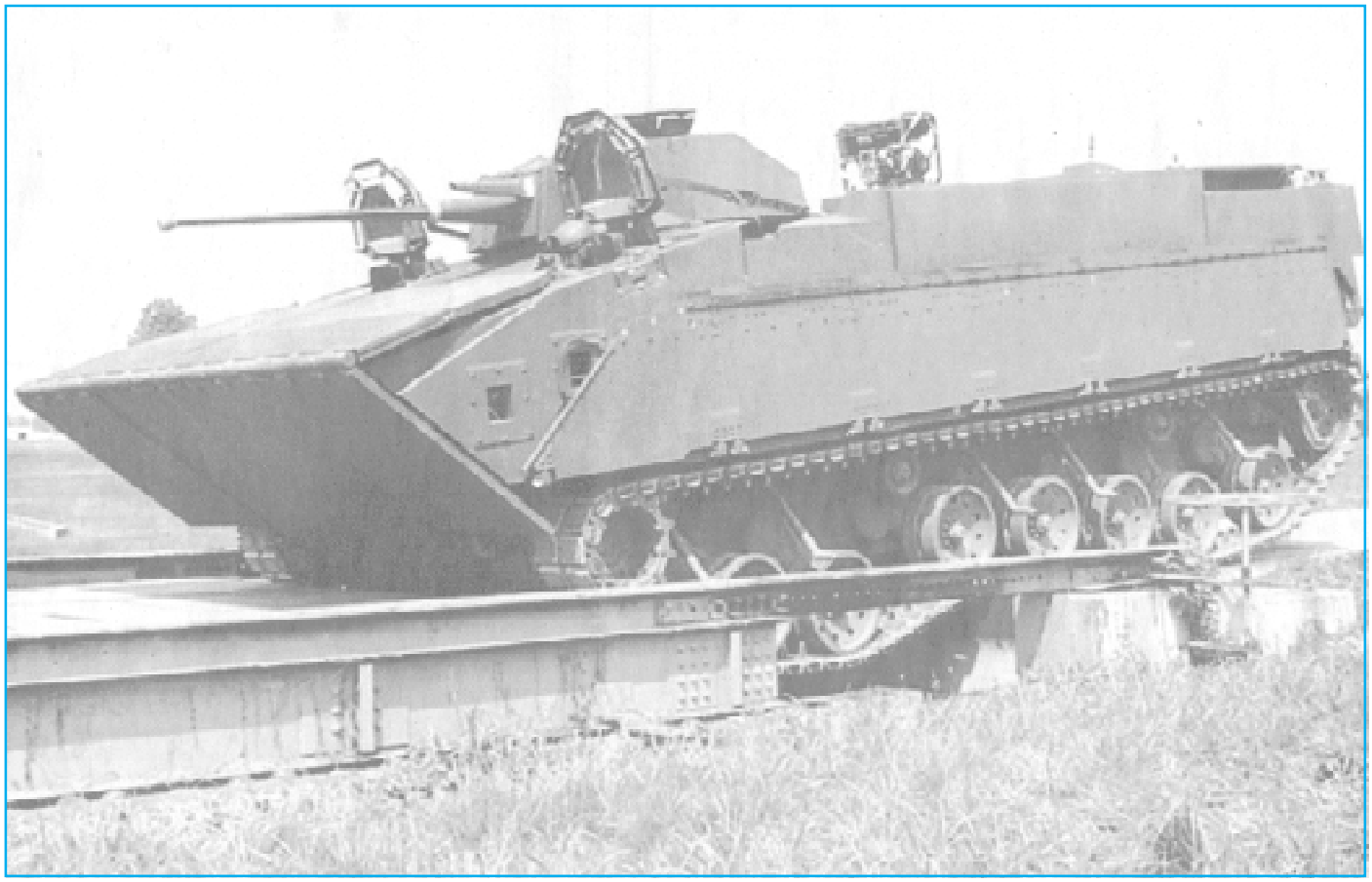
The Marine Corps' amphibious assault vehicle prototype undergoes performance testing in the water at the Patuxent Naval Air Station. Aberdeen Test Center conducted tests at its Underwater Explosives Test Facility and assisted with the Patuxent River testing.



The Marine Corps' amphibious assault vehicle prototype is put through its paces on one of the test-track facilities at ATC.

engine's high horsepower to move the AAAV up to 45 miles per hour on land and achieve a cross-country mobility similar to the Abrams M1A1 tank.

Tests of AAAV prototype performance in the water began in January at the Patuxent Naval Air Station, Md., with another prototype arriving at ATC in July to begin testing of the system's safety and performance on land. ATC's Underwater Explosions (UNDEX) Test Facility, assisted by the Navy's Underwater Explosions Research Department, conducted a series of explosive-shock tests in December and January. Live-fire tests on ATC land ranges will help the system's developers determine its lethality and vulnerability to enemy fire.

This test program is unusual, according to test directors, because it involved joint efforts by the Marine Corps, Army, and Navy while the AAAV was still in an early phase of development.

"When the program first got here, it was in its program definition and risk reduction phase," explained Todd Morris of ATC's Automotive Instrumentation Team, directing land-mobility tests on the AAAV. "Usually in that phase you don't have a prototype, but are looking at a lot of paperwork and a cardboard mockup, or something like that."

Like most prototypes, the vehicle that arrived at ATC in July had a few operational problems in the beginning, Morris said. ATC testers collected a variety of data from instruments in the vehicle as it negotiated test tracks, and the manufacturer used the information to fix problems and make design adjustments.

Testing at the Patuxent Naval Air Station also included an ATC team, Morris said, adding that ATC sent a van with instrumentation to Patuxent to collect data. The team worked to "flush out the performance envelope" for the vehicle in the water.

Hazel Cassady of ATC's Vulnerability/Lethality Team

directed ballistic hull and turret tests and said the program is unusual for her group because the UNDEX pond at APG is normally used for shock tests on systems such as boats and submarines rather than amphibious vehicles.

"This was our first shot at taking data on a vehicle such as this in the water," she said. "So we worked with the Underwater Explosions Research Department to get down exactly what the AAAV program office needed."

Cassady said the test did not require an operational vehicle loaded with components, but it had to act like one in the water, so the test team added the necessary weight.

"The hardest part was to add all that weight and do the measuring to make sure the center of gravity was correct," she said.

About $300,000 worth of test instrumentation was used to collect 124 separate channels of data inside and outside the vehicle - ranging from stress measurements on the hull from explosions at varying distances, to effects on mannequins inside, wire with gauges.

Marines representing passengers and crew came to APG for timed trials to determine how easily they could enter and exit the vehicle during the day and in nighttime conditions. These trials also led to design changes, said Jack Bailey, the Marine Corps' project manager overseeing the land-mobility testing.

"This is the first time we've taken all of the technology and put it into one platform," Bailey said. We're going to have some problems, but we want to test to learn, not test to pass or fail. It was a very unique opportunity to learn before you get into low-rate or full-rate production. It gives us a chance to influence the design early.

The need to alter equipment inside the vehicle was one lesson, he said.

"We learned a lot when we got into the human-factors issues," Bailey said. "How comfortable are seats? How do they fit when a real, live person sits down in them? We met the criteria for ingress and egress, but we found there were things we could do better. We learned about placement of people - how they had to turn to get into some areas."

Several "human-factors elements" have been built into the vehicle, Bailey added.

"We want to make sure the Marines on the inside are able to fight when they get there," he said, "and that means an environmental control system, an NBC overpressure system, room to store gear on the inside. It is a complex vehicle, but simple enough for a 19-year-old high-school graduate to operate, once he goes through the school. We would like to make this vehicle as user friendly as we can.

"We have had users from the fleet involved in this program since day one," he added. "Nine active-duty Marines are assigned to the program office and detailed to the prototypes. We refer to them as the developmental test Marines. The prototype at Aberdeen has two active-duty Marines assigned to it - one on a daytime shift and one at night. We're getting valuable feedback not only during the day when we're operating the vehicle, but also at night when we're doing maintenance. We're reviewing the interactive electronic technical manuals, tools, processes and procedures, and we're getting valuable feedback from them the whole time."

Support from ATC's testers is also critical to the success of the AAAV, Bailey added.

"They make it a habit of not putting up brick walls, but helping me to find a way to get something done," he said. "They have been instrumental in helping us thus far and have bent over backward to help us succeed. With that kind of teamwork, you can't miss."

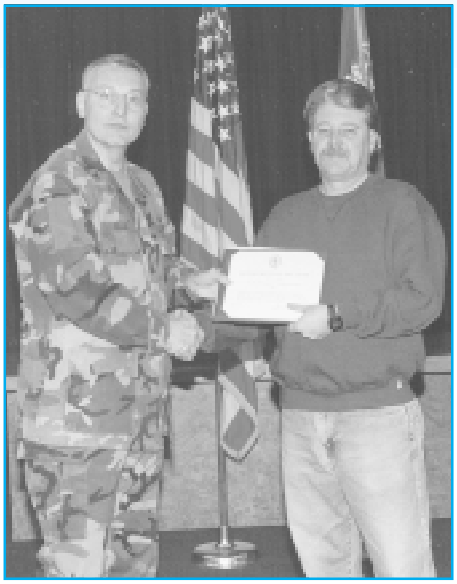
Article provided by Mike Cast, DTC Public Affairs.

Center of Excellence for Electric Technologies

When ATC and Army Research Laboratory (ARL) teamed to develop The Center of Excellence for Electric Technologies, Emory Thompson was selected as the ATC project coordinator and given the challenge of building a range complex with ARL funding and ATC labor. Instructions were to do it with barebones expenditures, do it right the first time, and do what is best for the Army.

Barricade 'C' was selected as the location to construct the Center because it best met the ARL's requirements. The first task was to provide a 40 foot by 40 foot enclosed, environmentally controlled, room to house a 4.5MJ pulsed power supply and electro-magnetic gun. This involved enclosing the left firing bay, pouring a floor, providing insulation, heating, ventilation, air conditioning, power, and installing test equipment. Thompson determined that the left bay had to be enclosed with steel to protect the equipment from projectile fragmentation danger and developed a plan indicating required actions and resources.

Through coordination with logisticians at Aberdeen Proving Ground and the Defense Supply Center in Philadelphia, Thompson identified available inventories of armor plate and leveraged his knowledge of project needs and business savvy to acquire fourteen sheets of 1/2 inch rolled homogeneous armor (RHA) plate that normally cost $837, for a cost of $460 per plate – but most impressively, he obtained an additional twenty-nine sheets of RHA at no cost, plus forty more RHA armor plates of various sizes – all suitable for construction of the center.



Colonel Ellis, ATC Commander, presents Emory Thompson, ATC Project Coordinator, with a Suggestion Award Certificate.

The materials Thompson obtained were sufficient to not only enclose the bay, but to build a bullet trap at Barricade 'C' to safely contain projectile fragments during testing. This improvement eliminated the need to construct a 135 foot long by 30 foot high protective wall and a 50 foot long by 20 feet high wall to protect adjacent buildings. Thompson's initiative led to significant construction cost savings and allowed the ARL - ATC Team to successfully complete the Center of Excellence for Electric Technologies.

A post-implementation evaluation of this project resulted in immediate approval and provided Thompson with a Suggestion Award Certificate and a check based on dollar savings from his initiative.

Article provided by Rick Kost, ATC Command Staff.

ATC Web Page UPDATE

During 2001, a redesign of the ATC web site will take place. Updated information and an improved layout will be incorporated into the redesign making it easier to locate and use the information on our site.

ATC is excited about the upcoming changes. The redesigned ATC web site should give users easier access to more information.

(continued from page 4)

(fleet operation), ATC has installed ADMAS units on 100 new Volvo class-eight trucks. The trucks are currently being driven through their normal operations across the US and Canada. The ADMAS units, in addition to monitoring and recording selected parameters from each truck's J1939 data bus, collect GPS, lateral, and fore/aft acceleration data. The data collected and stored by the ADMAS during all truck activities is downloaded periodically via a cellular link to a control computer located at ATC. Intelligent Vehicle Initiative data will be collected from this truck fleet for a two-year period and used to evaluate vehicle advanced technology and safety enhancements.

Data communicated to ATC is stored on a 32-processor supercomputer for processing and dissemination. The test data files, including test-descriptive "metadata", are written to Oracle 8 database tables that are connected to the World Wide Web via a 128-bit encrypted Internet Explorer or Netscape browser. For added security, a secure identification time-tagged password system is also in place via the Web.

Using the commercial Web browsers, customers connect to the supercomputer to query the database for data trend analyses, statistical processing, and data histogram graphical presentations. Future plans are to add online processing, allowing customers to perform mathematical transformations such as Fourier analyses, data differentiation and integration. All processing will be performed in parallel on the supercomputer, to allow rapid returns of the finished tabular or graphical results to the customer's desktop.

*Article written by **John R. Wallace** and **Susan M. Sanderson**, Aberdeen Test Center. It appeared in the Testing Technology International Magazine, February 2001 issue.*

We want to hear from you! Tell us what additional equipment, facilities, instrumentation and services ATC needs to serve you better. In order to ensure our customers are receiving the best service from ATC, we ask you to provide your comments and recommendations using our return address or e-mail address:

business@atc.army.mil

or our web address:

www.atc.army.mil

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